(CAEASTMA1)

- OLD - NOT IN USE

DPM 2561

MATERIAL SAFETY DATA SHEET

EASTMAN KODAK COMPANY
343 State Street
Rochester, New York 14650

For Emergency Health, Safety, and Environmental Information, call (716) 722-5151
For all other purposes, call the Marketing and Distribution Center in your area.

Date of Preparation: 3/9/83 Approved by U.S. Department of Labor

SECTION I. IDENTIFICATION

- Product Name: KODAK Photo Resist Dye Black (KRP)
- Formula: Solvent Mixture
- Kodak Photographic Chemicals Catalog Number(s): CAT 146 8370 - 1 Gallon; CAT 172 1034 - 54 Gallons; CAT 195 6515 - 1 Quart
- Solvent Mixture Number: 42400
- Kodak Accession Number: 355439

SECTION II. PRODUCT AND COMPONENT HAZARD DATA

A. COMPONENT(S):

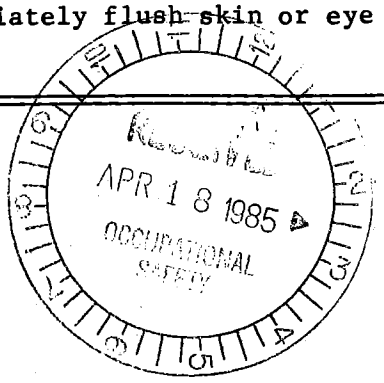
	Percent	TLV®	Kodak Accession No.	CAS Reg. No.
*Xylene	85-90	100 ppm (skin)	900460	1330-20-7
Benzaldehyde	1-5	---	900030	100-52-7
*Ethylene glycol monoethyl ether	1-5	50 ppm (skin) 5 ppm - proposed (skin)	901697	110-80-5

[*Principal Hazardous Component(s)]

B. PRECAUTIONARY LABEL STATEMENT(S):

Contains xylene and ethylene glycol monoethyl ether

WARNING! MAY CAUSE ADVERSE REPRODUCTIVE EFFECTS
MAY BE HARMFUL IF INHALED OR ABSORBED THROUGH SKIN
FLAMMABLE MIXTURE
Avoid breathing vapor.
Avoid contact with eyes, skin, and clothing.
Keep away from heat, sparks, and flame.
Use with adequate ventilation.
Wash thoroughly after handling.
If contacted, immediately flush skin or eye with plenty of water.



G-0020.000C
82-1246

SECTION III. PHYSICAL DATA

- Appearance and Odor: Black liquid; solvent odor
- Boiling Point: 130-150 °C (266-302 °F) @ 760 mmHg
- Vapor Pressure: < 10 mmHg @ 20 °C
- Vapor Density (Air = 1): 3.7
- Volatile Fraction by Weight: ∿ 95 %
- Specific Gravity (H_2O = 1): 0.877
- Solubility in Water (by Weight): Slight

SECTION IV. FIRE AND EXPLOSION HAZARD DATA

- Flash Point: 25 °C (77 °F) Tag closed cup
  31 °C (88 °F) Tag open cup
- Autoignition Temperature: 490 °C (915 °F)
- Cool Flame: 307 °C (585 °F)
- Flammable Limits in Air (mg/L): Not Available
- Extinguishing Media: Water spray; Dry chemical; CO_2
- Special Fire Fighting Procedures:
  Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
- Unusual Fire and Explosion Hazards:
  Fire or excessive heat may cause production of hazardous decomposition products.

SECTION V. REACTIVITY DATA

- Stability: Stable
- Incompatibility: Strong oxidizers
- Hazardous Decomposition Products:
  As with any other organic material, combustion will produce carbon dioxide and probably carbon monoxide.
  Oxides of nitrogen may also be present.
- Hazardous Polymerization: Will not occur.

SECTION VI. TOXICITY AND HEALTH HAZARD DATA

A. THRESHOLD LIMIT VALUE: See Section II.

Eastman Kodak Company suggests maintaining atmospheric concentration of ethylene glycol monoethyl ether below 5 ppm (skin) and xylene concentration below 100 ppm (skin), averaged over an 8-hour workday.

B. EXPOSURE EFFECTS:

Inhalation: Harmful if inhaled.
Repeated inhalation exposure to moderate concentrations of ethylene glycol monoethyl ether has produced adverse reproductive effects in experimental animals.[1]
Large oral doses have produced testicular atrophy and blood changes in rats.[3,4] High concentrations of xylene (approaching 200 ppm) are irritating to the nose, eyes and throat; gross overexposure can cause narcosis.[10]

Eyes: Contact with the liquid may cause eye irritation.

Skin: Prolonged or repeated skin contact may cause skin irritation. Systemic toxic effects may be produced if absorbed through the skin.(2)

C. FIRST AID:

Inhalation: Remove to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen.
CALL A PHYSICIAN

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes and get medical attention.

Skin: Flush skin with plenty of water.

D. ANIMAL TOXICITY DATA

Teratology Studies: Gestational exposure in rabbits and rats to ethylene glycol monoethyl ether at 617 and 767 ppm, respectively, induced significantly increased incidences of embryo mortality and produced maternal toxicity. Exposure of pregnant rabbits or rats to ethylene glycol monoethyl ether at 160 or 202 ppm, respectively, induced a significantly increased incidence of terata, growth retardation and embryo mortality. Significant maternal toxicity was still seen in rabbits but not in rats.(1)

Undiluted ethylene glycol monoethyl ether or water (control) was applied to the skin of pregnant Sprague-Dawley rats on days 7-16 of gestation. Applications were made 4 times/d in volumes of 0.25 or 0.50 ml ethylene glycol monoethyl ether. During treatment, the only sign of maternal toxicity was ataxia in the high dose group. All pregnancies were totally resorbed in the high dose group. In the lower dose group, there was a significant increase in totally resorbed litters, a significant reduction in the number of live fetuses per litter, and a significant increase in the incidence of the skeletal variations and cardiac malformations.(2)

SECTION VII. PERSONAL PROTECTION AND CONTROLS

A. RESPIRATORY PROTECTION:

An appropriate NIOSH-approved respirator for organic vapor should be worn if needed.

B. VENTILATION:

Local Exhaust: Recommended

Mechanical (General): Recommend at least ten air changes per hour for good general room ventilation.

C. SKIN AND EYE PROTECTION:

Protective gloves should be worn.
Safety glasses should be worn.

SECTION VIII. SPECIAL STORAGE AND HANDLING PRECAUTIONS

Material is classified as a flammable liquid. Keep away from heat, sparks, and flame. Keep container closed. Use with adequate ventilation.
Store in cool place.
Keep from contact with oxidizing materials.
Product residue may remain on or in "empty" package. All precautions for handling the product must be used in handling the "empty" package and residue. Clean before reusing or altering package.
Comply with all federal, state, and local codes pertaining to the storage, handling, dispensing and disposal of flammable liquids.

SECTION IX. SPILL, LEAK, AND DISPOSAL PROCEDURES

Prevent run-off from entering drains, sewers, and streams. Small spills may be collected with absorbent materials.
Avoid inhalation and skin contact.
Wear suitable protective equipment.
Remove all sources of ignition.
For large spills use a NIOSH-approved self-contained breathing apparatus.
Absorb material in vermiculite or other suitable absorbent and place in impervious container.
Dispose in an approved incinerator.
Contract with licensed chemical waste disposal service.
Federal, state, and local regulations take precedence.

SECTION X. ENVIRONMENTAL EFFECTS DATA

A. SUMMARY:

This chemical formulation has not been tested for environmental effects. Some laboratory test data and published data are available for the major components of this chemical formulation, and these data have been used to provide the following estimate of environmental impact:[4,5,6,7,8,9]

This chemical formulation has a high biological oxygen demand, and it is expected to cause significant oxygen depletion in aquatic systems. It is expected to have a low potential to affect secondary waste treatment microorganisms. It is expected to have a moderate potential to affect aquatic organisms. The major component of this formulation has a moderate potential to bioaccumulate. The components of this chemical formulation are readily biodegradable. If diluted with a large amount of water, a small quantity of this chemical formulation released directly or indirectly into the environment is not expected to have a significant impact.

SECTION XI. TRANSPORTATION

Transportation information may be obtained by requesting an EXTERNAL TRANSPORTATION ADDENDUM sheet by catalog number(s) from Kodak Publications Data Services, Eastman Kodak Company, 343 State Street, Rochester, New York 14650.

SECTION XII. REFERENCES

1. Hardin, B.D. et al. Testing of Selected Workplace Chemicals for Teratogenic Potential, Scand. J. Work. Env. Hlth. 7, 66-75 (1981). Also see Teratological Assessment of Ethylbenzene and 2-Ethoxyethanol, Batelle Pacific Northwest Laboratories (January, 1981). Available from CMA.

2. Harden, B.D. and Niemeier, R.W., "Teratogenicity of 2-Ethoxyethanol by Dermal Application," Teratology, 25 (2), 46A (1982).

3. Nagano, K. et al., "Testicular Atrophy of Mice Induced by Ethylene Glycol Monoalkyl Ether," Jap. J. Ind. Hlth. 21, 29-35 (1979).

4. Unpublished data. Health, Safety, and Human Factors Laboratory, Eastman Kodak Company, Rochester, New York.

5. Verschueren, K., Handbook of Environmental Data on Organic Chemicals, Van Nostrand Reinhold Company, New York, N.Y. (1977).

6. Dawson, G.W., Jennings, A.L., Drozdowski, D. and Rider, E., "The Acute Toxicity of 47 Industrial Chemicals to Fresh and Saltwater Fishes," J. Hazard Mater., 1, 303-18 (1975/77).

7. Juhnke, I. and Luedemann, D., "Results of the Study of 200 Chemical Compounds on Acute Fish Toxicity Using the Golden Orfe Test," Z. Wasser Abwasser Forsch., 11 (5), 161-4 (1978) (in German).

8. Bringmann, V.G. and Kuehn, R., "Results of the Damaging Effect of Water Pollutants on Daphnia magna," Z. Wasser Abwasser Forsch., 10 (5), 161-6 (1977) (in German).

9. Pomona College, Medicinal Chemistry Project, "Chemical Parameter Data Base," Leo, A.J. and Hanch, C., Eds., Seaver Chemistry Laboratory, Claremont, California, July 10, 1980.

10. American Conference of Governmental Industrial Hygiene, Documentation of Threshold Limit Value (1981).

@195-6515*
@172-1034*
@146-8370*
82-1246